

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for making a biomaterial, said method comprising combining two or more precursor components of said biomaterial under conditions that allow polymerization of the two components, wherein said polymerization occurs through self selective reaction between a strong nucleophile and a conjugated unsaturated bond or a conjugated unsaturated group, by nucleophilic addition, wherein ~~the functionality of each component is at least two~~ each of said precursor components comprises at least two strong nucleophiles or at least two conjugated unsaturated bonds or conjugated unsaturated groups, and wherein said biomaterial does not comprise unprocessed albumin, and said unsaturated bond or group is not a maleimide or a vinyl sulfone.

2. (Original) The method of claim 1, wherein said components are selected from the group consisting of oligomers, polymers, biosynthetic proteins or peptides, naturally occurring peptides or proteins, processed naturally occurring peptides or proteins, and polysaccharides.

3. (Original) The method of claim 2, wherein said components are functionalized to comprise a strong nucleophile or a conjugated unsaturated group or a conjugated unsaturated bond.

4. (Original) The method of claim 1, wherein said strong nucleophile is selected from the group consisting of a thiol or a group containing a thiol.

5. (Currently Amended) A method for making a biomaterial, said method comprising combining two or more precursor components of said biomaterial under conditions that allow polymerization of the two components, wherein said polymerization

occurs through self selective reaction between an amine and a conjugated unsaturated bond or a conjugated unsaturated group, by nucleophilic addition, wherein each of said precursor components comprises at least two amines or at least two conjugated unsaturated bonds or conjugated unsaturated groups ~~the functionality of each component is at least two~~, and wherein said biomaterial does not comprise unprocessed albumin, and said unsaturated bond or group is not a maleimide or a vinyl sulfone.

6. (Original) The method of claim 1, wherein said conjugated unsaturated group is an acrylate, an acrylamide, a quinone, or 2- or 4-vinylpyridinium.

7. (Original) The method of claim 2, wherein said polymer is selected from the group consisting of poly(ethylene glycol), poly(ethylene oxide), poly(vinyl alcohol), poly(ethylene-co-vinyl alcohol), poly(acrylic acid), poly(ethylene-co-acrylic acid), poly(ethyloxazoline), poly(vinyl pyrrolidone), poly(ethylene-co-vinyl pyrrolidone), poly(maleic acid), poly(ethylene-co-maleic acid), poly(acrylamide), and poly(ethylene oxide)-co-poly(propylene oxide) block copolymers.

8. (Currently Amended) The method of claim 1, wherein one of said components comprises ~~has a functionality of~~ at least three strong nucleophiles or three conjugated unsaturated bonds or conjugated unsaturated groups.

9. (Original) The method of claim 2, wherein said peptide comprises an adhesion site, growth factor binding site, or protease binding site.

10. (Original) The method of claim 1, further comprising combining said precursor components with a molecule that comprises an adhesion site, a growth factor binding site, or a heparin binding site and also comprises either a strong nucleophile or a

conjugated unsaturated bond or a conjugated unsaturated group.

11. (Original) The method of claim 10, wherein said strong nucleophile is a thiol or said conjugated unsaturated bond or conjugated unsaturated group is an acrylate, an acrylamide, a quinone, or a vinyl pyridinium.

12. (Original) The method of claim 1, wherein said biomaterial is a hydrogel.

13. (Original) The method of claim 1, wherein said biomaterial is degradable.

14. (Original) The method of claim 1, wherein said biomaterial is made in the presence of sensitive biological molecules.

15. (Original) The method of claim 1, wherein said biomaterial is made in the presence of cells or tissues.

16. (Original) The method of claim 1, wherein said biomaterial is made within or upon the body of an animal.

17. (Original) The method of claim 1, further comprising combining said precursor components with an accelerator prior to polymerization.

18. (Original) The method of claim 1, further comprising mixing said precursor components with a component that comprises at least one conjugated unsaturated bond or conjugated unsaturated group and at least one amine reactive group.

19. (Original) The method of claim 15, further comprising applying an additional

component to the cell or tissue surface, the additional component comprising at least one conjugated unsaturated bond or conjugated unsaturated group and at least one amine reactive group.

20.-50. (Cancelled)